Space Weather Forecast

Issued on Wednesday, 05 April 2023 at 13:30 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight chance of Minor Geomagnetic Storms on 05 Apr, soon declining. Slight chance of Moderate class flares throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low through the last 24 hours, with no significant flare activity. There are four sunspot regions on the visible disc, only one of carries a significant risk. This is a large and moderately complex region in the southwest quadrant, which is evolving through periods of greater and lesser complexity. A CME has been observed leaving the southeast of the Sun. Although it is unlikely to be Earth-directed from this location, analysis will be undertaken as further data becomes available.

Solar Wind / Geomagnetic Activity: The solar wind speed is at elevated or slightly elevated levels, due to the influence of two fast solar wind sources. Total magnetic field strength has been weak, with the north -south component also varying weakly. Geomagnetic activity has been Quiet to Unsettled, with one Unsettled interval.

Energetic Particles / Solar Radiation: High energy protons have been at background levels, with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to be mainly Low, with a slight chance of Moderate activity.

Solar Wind / Geomagnetic Activity: No CMEs are forecast to affect the Earth through the next four days. A current elevated to slight elevated fast solar wind is from a combination of coronal holes 89 and 90 is currently affecting the Earth, with a decline then expected through the remainder of the period. Geomagnetic activity is forecast to be mainly Quiet to Unsettled, with a risk of Active to G1/Minor Storms on 05 Apr.

Energetic Particles / Solar Radiation: Solar radiation storms are unlikely through this period, although there is a slight chance of reaching the Minor Storm level should a more significant flare occur.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	10	10	10
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	3	3	3	3
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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